



TRMM Flight Operations Monthly Status Review (MSR)

December 6, 2002



FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Lou Kurzmiller
 - Electrical/Thermal - Dave Sepan
 - RCS - Dave Sepan
 - ACS - Dave Sepan
 - Power & Deployables - Justin Knavel
 - FDS - Joe Kowalski
 - C&DH - Nega Berhanu
 - RF / Comm - Nega Berhanu
 - LIS - Nega Berhanu
 - CERES & VIRS – Justin Knavel
 - TMI - Dave Sepan
 - PR – Joe Kowalski
 - Ground System – Justin Knavel
 - Upcoming Activities – Justin Knavel



Flight Operations Summary

- Supported 495 SN events in November
 - 1 Yaw Maneuver to +X
 - 4 Delta-V Maneuvers; #416 through #419
 - » Occurring at ~7 day intervals
- No Anomaly or Event Reports & No generic Late Acqs



Flight Operations Summary

- Notable Events
 - Supported Leonids activity
 - Yaw Maneuver cmd sequence had to be expanded on timeline
 - Continued support of AutoFDS implementation effort

- No changes to FOT in November.



Thermal / Electrical Subsystems

- The Thermal subsystem remains nominal
- The Electrical subsystem remains nominal



RCS Subsystem

- RCS performed 4 successful Delta-V maneuvers (#416 - #419)
 - Current fuel remaining is 229 kg by the mass flow method.
 - Current fuel remaining by the PVT method is 209 kg.
 - Current Precision Pressure Transducer level is down to 158.3 psia.
- RCS subsystem is in “blow down” mode and is no longer pressure regulated.
- The current EOL estimate at 402.5 km is March 2004 using 134 kg of fuel as a baseline for controlled re-entry.
- Upcoming Events
 - Review and train with Delta-H procedure, EOL scripts, and the “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



ACS Subsystem

- ACS is performing nominally.
- On 02-308 (November 4th) ACS Table 54 was uplinked to change the Roll, Pitch, and Yaw limits from 15/11/11 degrees to 15/8/8 degrees.
- On 02-309 (November 5th) ACS Magfield 2000 Patch was copied to EEPROM.
- On 02-311 (November 7th) ACS Tables 51, 54, 57, 58, 61, 66 and 67 were copied to EEPROM to reduce recovery time from a cold start.



Power Subsystem

- Open issues
 - TSM 42 (Essential Bus Voltage via Filtered Spacecraft Processor Current) thresholds were updated from 24.6 V and 25.5 V to 24 V and 25 V.



Deployables Subsystem

- On-going work to track +Y Solar Array from 50° to 0° to reduce drag.
- -Y SA Sticking Anomaly On-going Work
 - Configure ACE for 15° in Safehold.
 - Workaround for GSACE Switch is On-going.
 - » ACS TSM will call ACS RTS 5 which will start SC RTS 22/23
 - » ACS RTS 5 and SC RTS 22/23 are built



FDS Subsystem

- The FDS Subsystem remains nominal
- On 02-317 (November 13th) new S/C system table #21 loaded to RAM, contained updated TSM #42
- On 02-318 (November 14th) S/C system table #21 and S/C RTSs #3 and #20 loaded to EEPROM from RAM
 - RTS #3: now calls RTS #60 for frequency offset
 - RTS #20: -Y solar array commands removed



C&DH Subsystems

- UTCF/FS Status;
 - 1 UTCF Adjustment was performed on 02-308 (Mon., Nov. 4th).
 - » Current UTCF value is 31535996.796791 sec
 - 1 FS Adjustment was performed on 02-308 (Mon., Nov. 4th).
 - » Current FS value is x'806'.
 - No Open issues



RF Subsystem

- No Late Acquisitions occurred since last MSR.
- No RF Event Reports since last MSR.
- Frequency offsets (monthly average)
 - Transponder #1 = - 54.624 Hz
 - Transponder #2 = + 67.564 Hz
- No open issues



LIS Instrument

- LIS was powered off on 02-323 from 00:37:18z to 14:39:18z for the Leonids Storm.
- 1 Routine MSFC real-time command request was performed on 02-317 (November 13th) to reduce packet sequence errors.
- No open issues



CERES/VIRS Instruments

- **CERES.**
 - Powered OFF.
- **VIRS**, continues to operate nominally.
 - Two VIRS Solar Calibrations were performed on 02-320 (Sat., November 16th).
 - VIRS was powered off from 323/00:42z to 323/15:56z for the Leonids Storm. After Outgassing, VIRS returned to mission mode at 325/12:45z.



PR/TMI Instruments

- PR was powered off on 02-323 from 00:38:53z to 14:32:02z for the Leonids Storm
- No open issues with the PR instrument
- PR LOGAMPCHECK performed on 02-325 (Nov 21st)
- TMI was powered off on 02-323 from 00:36:22z to 14:38:29z for the Leonids Storm
- No open issues with the TMI instrument



Ground System / Security

- New Password Software installed on String 2.



Upcoming Activities

- 0-2 Months
 - Perform remaining FSW revisions due to new Kalman Filter mode of operations and Boost activities
 - » Table 51 DSS Tolerance Versions
 - » TAM B Calibration
 - Load new GSACE Switch RTSs for +Y Stuck Array
 - Load new ACS Table with Solar Array 50 to 0 degree tracking
 - Test with TDRS I
 - Test with TDRS 275 for End of Life
 - Place remaining permanent table / patch changes into EEPROM
 - Support finalization of TRMM End of Life and Reentry Plan
 - Aid in Development and Testing of Auto-FDS



Upcoming Activities

- 2-3 Months
 - Participate in End of Life Plan review(s)
 - End Of Life Plan Testing, and Simulations
 - Continue to close open CCRs, MOCRs, and MSR Action Items